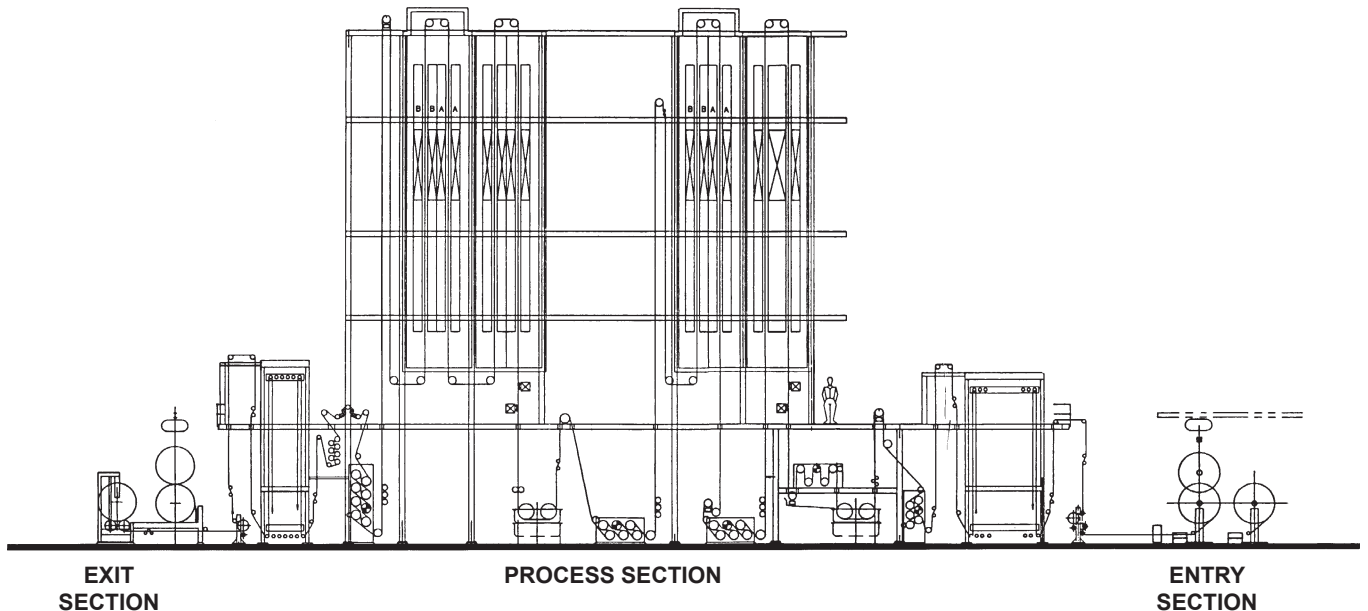
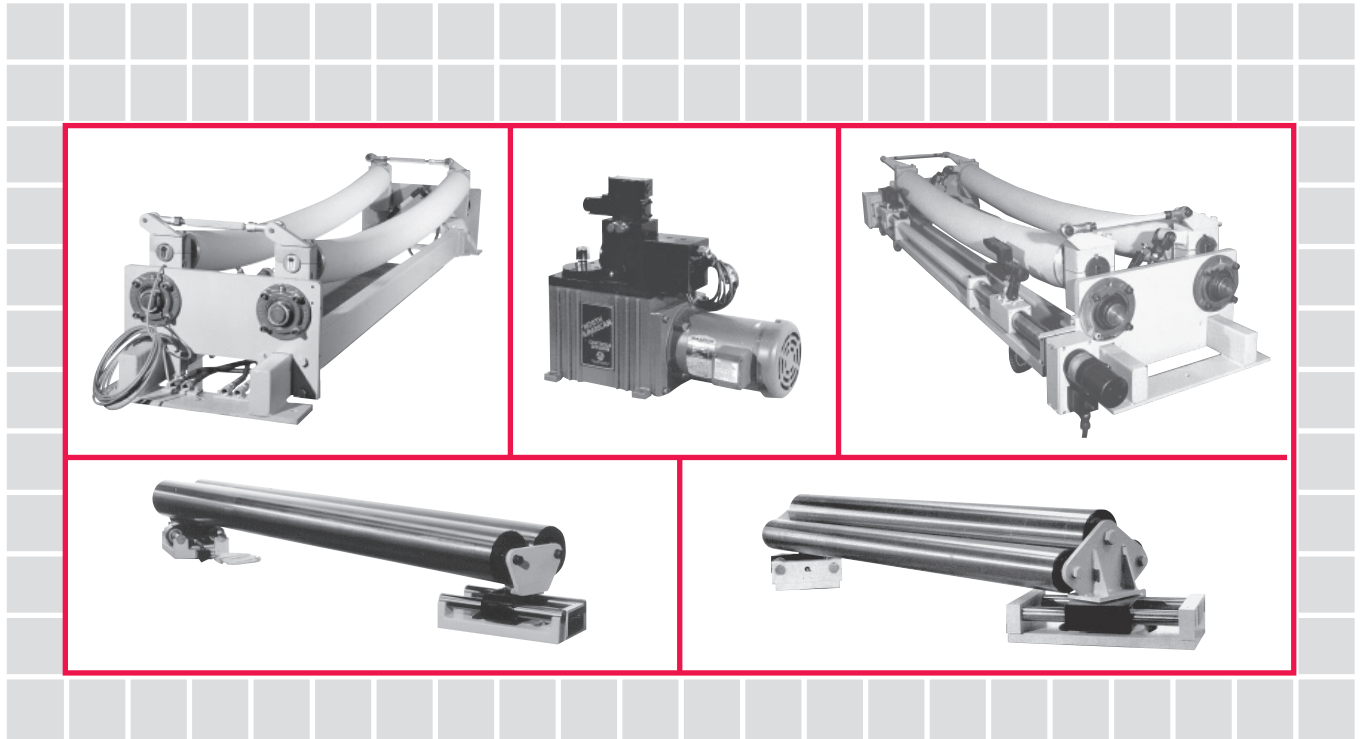


Fabric Treating Lines

"Total Concept"

Automatic Guiding and Spreading Control Systems

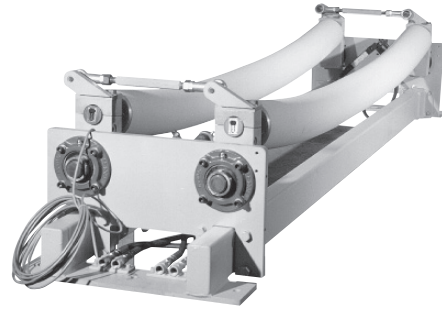


Fabric treating plants are integral partners with tire producing facilities. Specifications for tire manufacturing have become more and more critical as the demand increases for higher tire performance characteristics. The process of treating a variety of greige fabrics for ultimate tire production is a key element in the goal of higher tire performance and consistent quality. Total fabric handling systems that eliminate the varied levels of operation and craftsmanship for treating fabrics is essential.

"TOTAL CONCEPT" Fabric Control Systems

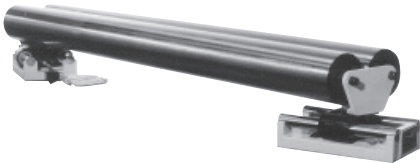
Fives North American's technical advancements allow fabric treating plants to now consider automation of the fabric center-guiding systems and fabric spreading systems to maximize the uniform quality characteristics. Our TOTAL CONCEPT fabric control systems feature:

- **Discriminating Center-Guide Detectors** specifically designed for viewing tire cord fabric to provide reliable centerline positioning of the greige fabric or treated fabric.
- **Discriminating Edge Detectors** specifically designed to sense even low end count fabric (8 EPI) and provide accurate proportional output.
- **SpreadMaster[®]** tire cord spreading systems for low tension and high tension applications feature patented ZERO-RESET technology that compensates for the variable transport lag (hunting action) to achieve stable and accurate ($\pm 1/16$ ") width control for the fabrics.
- **Adjusta-Guide[®]** fabric center-guiding systems (steering type) for 500 pounds (227 kg) to 30,000 pounds (13,632 kg) tension zones. Designed for center-guiding fabric in the terminal sections and process section of the fabric treating line.
- **MasterTrac[™]** programmable edge detector positioning for the high and low tension **SpreadMaster** fabric spreading systems.
- **Computer Compatible Control Functions** of the **SpreadMaster**, **Adjusta-Guide**, and **MasterTrac** detector positioning system are compatible with an on-line host computer.

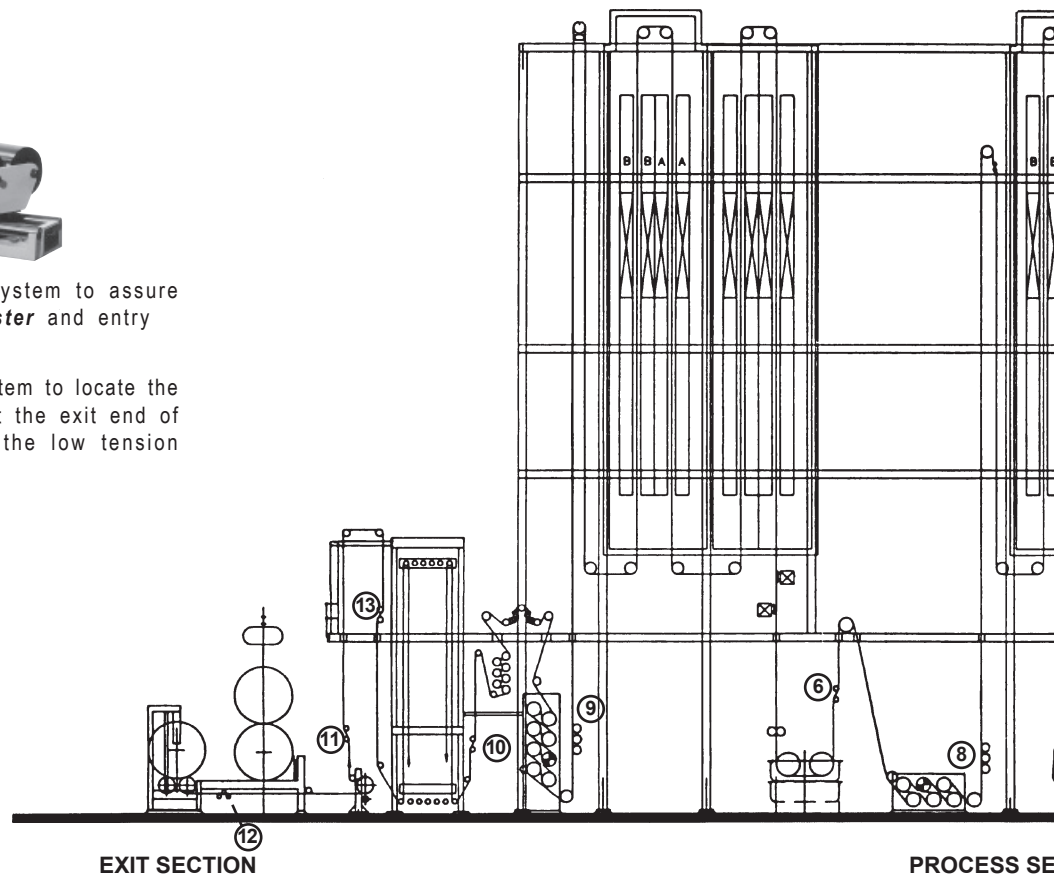


- ③ **SpreadMaster** (4.5" diameter) low tension, tire cord spreading system with ZERO-RESET control and MasterTrac programmable detector positioning for initial fabric spreading into the entry accumulator.
- ④ **SpreadMaster** (4.5" diameter) low tension, fabric spreading system with ZERO-RESET control and MasterTrac programmable detector positioning for accurate spreading and tire cord distribution prior to the high tension zone.

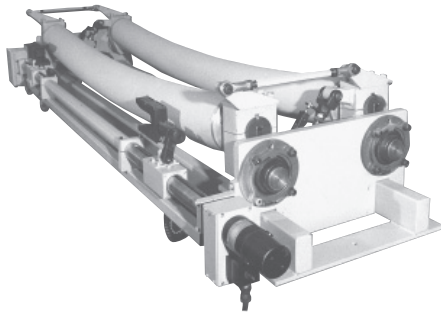
ENTRY SECTION



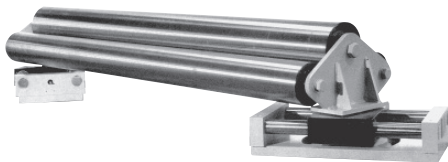
- ① Adjusta-Guide 2-roll center-guiding system to assure that the fabric enters the **SpreadMaster** and entry accumulator on machine centerline.
- ② Adjusta-Guide 2-roll center-guiding system to locate the textile fabric to machine centerline at the exit end of the entry accumulator and prior to the low tension **SpreadMaster**.



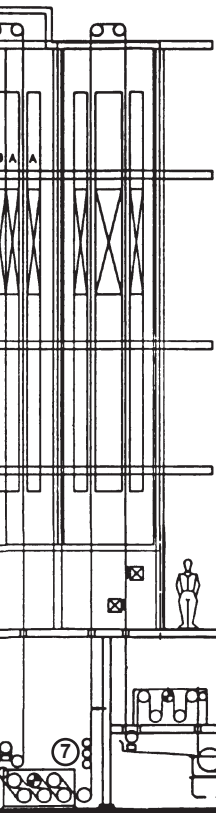
PROCESS SECTION



- ⑤ **SpreadMaster** (6.3" diameter) high tension, tire cord spreading system with ZERO-RESET control and MasterTrac programmable detector positioning for fabric spreading and tire cord distribution into the dip tank.
- ⑥ **SpreadMaster** (6.3" diameter) high tension, fabric spreading system with ZERO-RESET control and Master-Trac programmable detector positioning for fabric spreading prior to #2 dip tank.

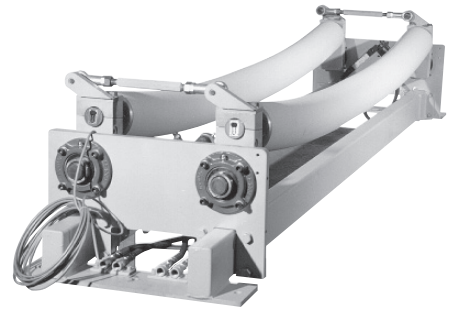


- ⑦ Adjusta-Guide tri-roll, high tension, center-guiding system to assure that the fabric is on machine centerline prior to a high tension bridle.

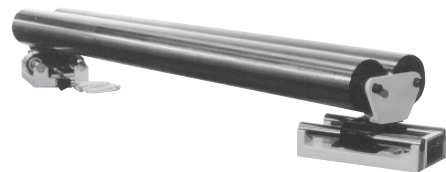


- ⑧ Adjusta-Guide tri-roll, high tension, center-guiding system to assure that the fabric is on machine centerline prior to a bridle.
- ⑨ Adjusta-Guide tri-roll, high tension, center-guiding system to assure that the fabric is on machine centerline prior to the low tension exit section of the line.

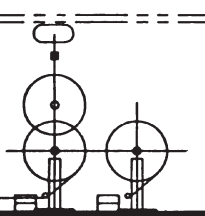
EXIT SECTION



- ⑩ **SpreadMaster** (4.5" diameter) low tension, fabric spreading system with ZERO-RESET control and Master-Trac programmable detector positioning for accurate spreading prior to the exit accumulator.
- ⑪ **SpreadMaster** (4.5" diameter) low tension, fabric spreading system with ZERO-RESET control and Master-Trac programmable detector positioning for preliminary fabric spreading and width control prior to wind-up.
- ⑫ **SpreadMaster** (4.5" diameter) low tension, fabric spreading system with ZERO-RESET control and Master-Trac programmable detector positioning for accurate fabric width control and tire cord distribution prior to surface wind-up.



- ⑬ Adjusta-Guide 2-roll center-guide system to locate fabric to machine centerline at the exit end of the exit accumulator and before the preliminary **SpreadMaster** prior to wind-up.



ENTRY SECTION



Fives North American Combustion, Inc.
Guiding Systems

4455 EAST 71st STREET, CLEVELAND, OH 44105 USA
Tel: 216.271.6000 Fax: 216.641.7852

email: fna.guiding@fivesgroup.com • www.fivesgroup.com/fivesna